

**ANTIBACTERIAL POTENCY OF MIXED *Piper crocatum* EXTRACT
AND ZINC OXIDE AGAINST OF *Enterococcus faecalis***

ABSTRACT

Background: *E. faecalis* is a anaerob facultative gram-positive bacterial often found in infection after root canal treatment. Zinc oxide eugenol is one of the root canal filling which is still often used. Over filling of eugenol can cause irritation. *Piper crocatum* has more antibacterial properties that contained some of the active compounds. There were flavonoids, alkaloids, tannins, saponin, polifenolat, fenol and its derivatives. The extract of *Piper crocatum* expected to be used as an alternative material eugenol. **Purpose:** The aim of this study was to determine antibacterial activity of a mixture of *Piper crocatum* extract and zinc oxide in killing *E. faecalis* bacteria at the concentrations of 50%, 37.5%, 25% and 12.5%. **Methods:** The extraction of *Piper crocatum* was made by macerating with 96% of ethanol and divided into four concentrations. Zinc oxide powder is mixed with an extract of *Piper crocatum* a ratio of 1: 1, then a suspension of bacteria *E. faecalis* which was comparable to a McFarland standard 0,5 of 1.5×10^8 CFU / ml was made. Six petridish containing Blood Agar media were divided into 4 sections each petridish. The mixture of *Piper crocatum* extract with some concentrations of zinc oxide powder was applied to the Blood Agar media with diffusion method. **Result:** Significant differences were found between the inhibition zone on all treatment groups in inhibiting bacteria *E. faecalis*. **Conclusion:** The mixture of *Piper crocatum* extract and zinc oxide has antibacterial activity in killing *E. faecalis* bacteria with the minimum concentration is 12,5 % and the highest at concentration of 50%.

Key words: *Piper crocatum*, zinc oxide, *E. faecalis*.

**DAYA ANTIBAKTERI CAMPURAN EKSTRAK *Piper crocatum*
DAN ZINC OXIDE TERHADAP BAKTERI *Enterococcus faecalis*****ABSTRAK**

Latar belakang: *E. faecalis* adalah bakteri gram positif fakultatif anaerob yang sering ditemukan pada infeksi pasca perawatan saluran akar. Zinc oxide eugenol merupakan salah satu bahan pengisi saluran akar yang masih sering digunakan. Pengisian eugenol yang berlebih dapat menyebabkan iritasi. *Piper crocatum* memiliki sifat antibakteri yang terdapat dalam beberapa senyawa aktif yaitu flavonoid, alkaloid, tanin, saponin, polifenolat, fenol dan derivatnya. Ekstrak *Piper crocatum* diharapkan dapat digunakan sebagai bahan alternatif eugenol. **Tujuan:** Untuk mengetahui daya antibakteri campuran ekstrak *Piper crocatum* dan zinc oxide dalam membunuh bakteri *Enterococcus faecalis* pada konsentrasi 50%, 37,5%, 25%, dan 12,5%. **Metode:** Pembuatan ekstrak *Piper crocatum* dilakukan dengan cara maserasi menggunakan etanol 96% dan dibuat 4 konsentrasi. Bubuk zinc oxide dicampur dengan ekstrak *Piper crocatum* dengan perbandingan 1:1. Suspensi bakteri *E. faecalis* disetarakan dengan standar McFarland 0,5 sebesar $1,5 \times 10^8$ CFU/ml. Enam petridish berisi media Blood Agar dibagi menjadi 4 bagian setiap petridish. Campuran ekstrak *Piper crocatum* beberapa konsentrasi dengan bubuk zinc oxide diaplikasikan ke media Blood Agar dengan metode difusi. **Hasil:** Terdapat perbedaan yang signifikan antara zona hambat pada seluruh kelompok perlakuan dalam menghambat bakteri *E. faecalis*. **Simpulan:** campuran ekstrak *Piper crocatum* dan zinc oxide memiliki daya antibakteri dalam membunuh bakteri *E. faecalis* dengan konsentrasi minimal 12,5% dan yang paling tinggi pada konsentrasi 50%.

Kata kunci: *Piper crocatum*, zinc oxide, *E. faecalis*.